

Application for Radiation Shielding Plan Review

Dental Facilities

Guide to Completing a Request for Radiation Shielding Plan Review - Dental Facilities

Purpose:

The purpose of this guide is to assist you in completing the Application for Radiation Shielding Plan Review. Room shielding is required to provide protection outside the room where the x-ray unit will be operated to ensure machine operators and members of the general public are not unnecessarily exposed to radiation.

Iowa Administrative Code

[641-41.1\(3\)d. Plan review.](#)

(1) Prior to construction of all new installations or modifications of existing installations, or installations of equipment into existing facilities utilizing x-rays for diagnostic or therapeutic purposes, the floor plans and equipment arrangements shall be submitted to the agency for review and verification that national standards have been met.

Definitions:

“Registered service providers” are companies registered with IDPH to provide services such as installation, repair, and calibration of x-ray equipment and processors, and radiation safety evaluations of facilities.

“Exposure” means one push of the control button to allow one x-ray image to be created.

Dental Equipment Requirements (this list is not all-encompassing. Please refer to [Iowa Administrative Code, Chapter 41](#) for all rules related to dental equipment):

1. The x-ray unit is operated in the range from 60 kVp to 90 kVp and is equipped with a position-indicating device.
2. The room containing the x-ray unit has dimensions of at least 6 feet x 6 feet.
3. The operator must be able to stand behind a protective barrier or wall of at least 6.5 feet or be at least 9 feet from the unit and out of the direct beam. This does not apply to hand-held dental units.
4. Hallways must be controlled so that no individual is passing the door of the room during x-ray exams.
5. Dental machines shared by two rooms should have the pass-through opening located at the end of the rooms so the primary beam cannot pass through the opening. Doors on the pass-through are recommended.
6. Additional shielding (three thicknesses of 5/8” drywall instead of two) is required when sharing a wall with another office or tenant where the dentist does not have administrative control. Firewall construction of brick or concrete block between businesses is usually sufficient if the x-ray room is adjacent to the firewall.
7. Other materials can provide adequate wall shielding such as concrete block or brick. While this is usually sufficient, contact a registered service provider if you have questions.

Instructions:

Complete the below sections of the Application for Radiation Shielding Plan Review and email it at least 30 days prior to installation to radhealthia@idph.iowa.gov.

Section 1. - General Information - **Required for all applications**

Section 2. - Unit Type and Workload

(Review Table A. Unit Type and Use Chart to determine if Section 3. Attestation can be submitted or if Section 4. Radiation Shielding Plan must be submitted)

Section 3. - Attestation **OR**

Section 4. - Radiation Shielding Plan

If more than one type of x-ray unit is being installed, you may need to complete both Section 3. Attestation and Section 4. Radiation Shielding Plan. Please refer to Table A. in Section 2. - Unit Type and Workload to make that determination.

If you are unable to email the form, please mail it to:

Iowa HHS Bureau of Radiological Health
Lucas State Office Bldg, 5th Floor
321 East 12th Street
Des Moines, IA 50319

Allow at least 4 weeks for us to review your submission. You will receive a letter acknowledging your submission. **All items must be completed in order for Iowa HHS to make a valid review. Incomplete submittals will delay the plan review.**

For any questions regarding the form, please email radhealthia@idph.iowa.gov or call 515-802-6866.

FOR MORE INFORMATION:

You may visit the National Council on Radiation Protection and Measurements (NCRP) website (ncronline.org) and review the appropriate document:

1. NCRP Report #145: Radiation Protection in Dentistry
2. NCRP Report #147: Structural Shielding Design for Medical X-ray Imaging Facilities
3. NCRP Report #148: Radiation Protection in Veterinary Medicine

If the action required is to contact a registered service provider, they need to use the NCRP guidelines to complete the shielding request form. If they choose to use their own form, it must contain the information listed below in the IDPH request for review form.

All submissions are compared to the NCRP Reports to verify that the shielding meets national standards. After reviewing the submission, IDPH may still require the applicant to use the services of a registered service provider to determine proper shielding.

Section 1. - General Information

Please complete and submit the form with your shielding plans and specifications according to the guidelines below. Radiation shielding plans should be reviewed by the Iowa Health and Human Services Bureau of Radiological Health before construction and before operation of the x-ray equipment.

A. Location of Proposed X-ray Room(s)			
Facility Name:		Facility's Iowa Registration Number (if already registered):	
Address:		City, State, Zip:	
Mailing Street Number <i>(if different than above)</i> :		Mailing City & Zip <i>(if different than above)</i> :	
Facility Contact:		Facility Contact Email:	
Facility Contact Phone Number:		Facility FAX Number:	
B. Submitter of Plan <i>(if different than indicated in Part A.)</i>:			
Individual's Name:		Company Name:	
Phone Number:		Email:	
C. Purpose of Application			
New X-ray Room in New Construction?	<input type="checkbox"/>	New X-ray Equipment in Existing X-ray Room?	<input type="checkbox"/>
Remodel of Existing X-ray Facility?	<input type="checkbox"/>	Existing X-ray Facility that you are moving into?	<input type="checkbox"/>
Expected Date of Construction Completion <i>(if applicable)</i> :		Expected Date of X-ray Equipment Installation:	
D. X-ray Equipment Information			
Room Name or Number Where New X-ray Unit is Being Installed:		Type of X-ray Unit Being Installed:	
Is This New X-ray Unit Replacing an Existing X-ray Unit?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Manufacturer of Unit to be Removed From Service <i>(if applicable)</i> :
Model name of Unit to be Removed From Service <i>(if applicable)</i> :		Serial Number of Unit to be Removed From Service <i>(if applicable)</i> :	
Additional X-Ray Equipment Information can be added below if needed.			
Room Name or Number Where New X-ray Unit is Being Installed:		Type of X-ray Unit Being Installed:	
Is This New X-ray Unit Replacing an Existing X-ray Unit?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Manufacturer of Unit to be Removed From Service <i>(if applicable)</i> :
Model name of Unit to be Removed From Service <i>(if applicable)</i> :		Serial Number of Unit to be Removed From Service <i>(if applicable)</i> :	

Section 2. - Unit Type and Workload

Instructions: Review the Unit Type and Use Table (Table A.) below to determine the number of exposures you anticipate for your new unit. Select the appropriate choice. Check all that apply for each new x-ray unit being installed.

A. Unit Type and Use Table				
Select Applicable	Type of Unit	Number of Exposures Per Week	Room Shielding Requirement	Action Required
<input type="checkbox"/>	Stationary or Hand Held Intraoral	Up to 100	All personnel including staff and other patients need to be at least 6 feet away from x-ray source.	Complete portion B and sign Section 3. - Attestation on page 4 below.
<input type="checkbox"/>	Stationary or Hand Held Intraoral	Over 100	Must be submitted by a registered service provider.	Contact service provider and complete Section 4. - Radiation shielding Plan on pages 5-6 below.
<input type="checkbox"/>	Panoramic and/or Cephalometric	Up to 50	All personnel including staff and other patients need to be at least 6 feet away from x-ray source. Operator must follow #3 under the Criteria section listed above.	Complete portion B and sign Section 3. - Attestation on page 4 below.
<input type="checkbox"/>	Panoramic and/or Cephalometric	Over 50	Must be submitted by a registered service provider.	Contact service provider and complete Section 4. - Radiation shielding Plan on pages 5-6 below.
<input type="checkbox"/>	CT or cone beam CT	Any amount	Must be submitted by a registered service provider.	Contact service provider and complete Section 4. - Radiation shielding Plan on pages 5-6 below.

**If you are installing any unit type other than what is listed above, please email the Radiation Machines program staff at radhealthia@idph.iowa.gov.*

B. Workload						
<i>Example: Type or exam; Intraoral/4 exposures. The unit operator's manual should have the average mA, kVp, and time for each type of exposure. For new practices, please estimate the number of weekly exams expected after 6 months of operation. If needed use additional paper to include ALL exams performed.</i>						
	Type of exam	Number of exposures per exam	Average number of exams per week	Average mA	Average kVp	Average exposure time
1.						
2.						
3.						

Section 3. - Attestation

If the Action Required, as listed in Table A. above, indicates the Attestation can be completed, fill out this section only.

C. Attestation	
<p>I attest that the number and type of x-ray exposures for my facility fall within the parameters noted in the chart and do not require a review from a registered service provider. I understand that I am responsible to notify IDPH if these parameters change and take appropriate action.</p> <p>Signature: _____</p>	
<p>Title: _____</p>	<p>Date: _____</p>

Section 4. - Radiation Shielding Plan

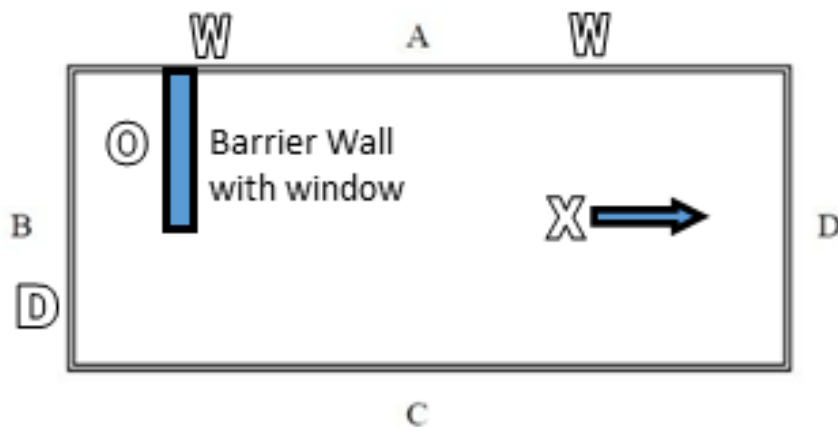
Complete one request for each room. All sections marked with an * are required.

Please attach a drawing, floor plan or diagram of the radiographic room to include all information listed in Table A. below.

A. Dimensions of the Room *				
Distance from wall A to wall C:				
Distance from wall B to wall D:				
Use the following symbols on your drawing/diagram:				
W = Windows	D = Doors	X = Position of the X-ray unit	P = Pass-through Door	O = Operator Location
Use arrows to show the general direction(s) of the x-ray beam during exposures.				

Example of room drawing:

If any of the below are surrounded by hallways, you must be able to prevent passing during exposures.



B. X-ray Room Composition (fill in the appropriate blanks) *				
	Wall A	Wall B	Wall C	Wall D
E or Exterior or I for Interior				
Thickness of sheetrock in inches				
Number of layers of sheetrock				
Inches of Lead (1/16, 1/32 OR Inches of concrete block or other material (please specify material)				

Composition of Floor	<input type="checkbox"/> Wood	<input type="checkbox"/> Concrete	<input type="checkbox"/> Other (Specify) _____	Thickness in inches _____
Composition of ceiling	<input type="checkbox"/> Wood	<input type="checkbox"/> Concrete	<input type="checkbox"/> Other (Specify) _____	Thickness in inches _____

C. What or who is on the other side of the wall *		
<i>Measure from the wall to the person.</i>		
	Distance to nearest person in feet	How many hours per day is this person in this position?
Wall A		
Wall B		
Wall C		
Wall D		
Floor		
Ceiling		

If the Action Required, as listed in Table 2. A. on page 4 of this application indicates the Radiation Shielding Plan must be completed, fill out this section only.

D. Radiation Shielding Plan *	
<p>I verify that the above information is correct. I will notify Iowa HHS of any changes to this form or my facility before the changes are made. I understand that this review request does not imply approval or disapproval of this facility.</p> <p>Signature: _____</p>	
Title: _____	Date: _____

Jan 26, 2023